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**THE USE OF MUSIC EDUCATION IN ORAL SCHOOLS FOR
CHILDREN WHO ARE DEAF AND HARD OF HEARING**

by

Julie Fix

**An Independent Study
submitted in partial fulfillment of the
requirements for the degree of:**

Master of Science in Deaf Education

**Washington University School of Medicine
Program in Audiology and Communication Sciences**

May 16, 2008

**Approved by:
Michelle Gremp, M.S.D.E., Independent Study Advisor**

Abstract: This paper is a survey and discussion of the teaching methods, objectives, and benefits associated with music programs in oral schools for children who are deaf and hard of hearing.

ACKNOWLEDGEMENTS

I would like to thank my advisor, Michelle Grempe, for all her support and constructive criticism. This independent study could not have been written without her help.

I would also like to thank the 27 respondents who completed the survey for their thoughtful insights and observations regarding music instruction for children who are deaf and hard of hearing. The information they provided was invaluable for the completion of this study.

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INTRODUCTION

Throughout the course of human history, music has played an integral role in the events that have shaped our existence. Music has been used as means for people to express themselves and their feelings related to myriad political, cultural, community, and personal experiences. We use music to show others how we feel about ourselves and the world around us; iconic pieces of music have come to represent the events, emotions, and values of entire generations. The definition of “music” can vary greatly. Objectively speaking, music can be thought of in terms such as singing, dancing, or playing instruments to produce rhythms and melodies. However, any person for whom music plays an important role in his or her life will describe it quite differently; music is largely defined by how it makes people think, feel and act. Music can inspire creative thinking and affect areas of our lives that we perhaps did not previously think were connected.

Many people view the ability to appreciate music as an inherent trait in all human beings. This paper looks at the impact music exposure and training can have on children who are deaf and hard of hearing (this terminology is used to include children with a broad range of hearing losses, from mild hearing loss to profound deafness). Historical data, empirical research, and anecdotal information are used to support an in-depth discussion of the various effects music can have on the lives of children who are deaf and hard of hearing. In this paper I hope to present a detailed representation of the various ways in which music is used and benefited from by children who are deaf and hard of hearing.

REVIEW OF LITERATURE

It may at first seem counterintuitive to discuss the importance of music with regard to individuals who are deaf and hard of hearing. One's initial reaction may be to question how these individuals could even experience music as we generally think of it or how they could enjoy the benefits of exposure to music. A wealth of research exists, however, to support the idea that individuals, especially children, who are deaf and hard of hearing can benefit greatly from participation in music activities. The incorporation of musical techniques and methodologies into deaf education programs has been documented for nearly two hundred years. Although issues such as approaches to music education, attitudes about the capabilities of individuals who are deaf and hard of hearing, and interpreting the connection between music and other areas of performance and development have changed over the years, the basic findings are largely the same. Participation in music education programs can greatly benefit children who are deaf and hard of hearing in areas that range from cognitive development to auditory, speech, and language skills to social-emotional health (Anvari, Trainor, Woodside, & Levy, 2002; Atkins & Donovan, 1984; Bilhartz, Bruhn, & Olson, 2000; Birkenshaw, 1965; Chan, Ho, & Cheung, 1998; Cheek & Smith, 1999; Darrow, 1985; Darrow & Heller, 1985; Gilmore, 1966; Ho, Cheung, & Chan, 2003; Hummel, 1971; May, 1961; McDermott, 1971; Patel & Iversen, 2007; Sheldon, 1997; Thompson, Schellenberg, & Husain, 2004; Walczyk, 1993; Wecker, 1939).

History

One of the earliest recorded uses of music as a means to help diagnose hearing impairments is described in a study conducted in 1802 by Jean-Marc-Gaspard Itard, a French otologist and deaf educator who used different musical instruments to develop the auditory discrimination skills of students who were deaf and hard of hearing (Hummel, 1971; Solomon, 1980).

In the United States, the establishment of formal music education can be traced to Lowell Mason's inclusion of music in Boston public schools in 1837 (Darrow & Heller, 1985). Eleven years later, in 1848, William Wolcott Turner and David Ely Bartlett wrote an article in the *American Annals of the Deaf and Dumb* (today known as the *American Annals of the Deaf*) advocating music instruction for children who are deaf and hard of hearing. In this article, which according to Darrow and Heller (1985) is likely the first statement in print of a rationale and methodology for teaching music to individuals who are deaf and hard of hearing, Bartlett describes teaching a young deaf girl to play the piano by focusing on rhythmic instruction using tactile stimulation and visual information (Darrow, 1985; Darrow & Heller, 1985; Hummel, 1971).

Bartlett's work with this young girl may be one of the earliest case study reports on music for children who are deaf and hard of hearing, but many other schools and institutions were also beginning to recognize the value of music in their curricula around this same time during the nineteenth century (Darrow, 1985). Solomon (1980) notes that many schools for the deaf at this time were teaching subjects called "rhythms" that acted as precursors to speech development. A program description from the Kindergarten and Primary School for Hearing and Deaf Children in Washington D.C. dated 1883

references the use of music in the form of imitative singing and music games led by a teacher using a piano. The Warren Articulation School in New York reported in 1890 that aural instruction included the use of instruments, rhythmic clapping, and other noises (Solomon, 1980). Throughout the country during the nineteenth century, schools for the deaf incorporated music into the curriculum because of its diagnostic and teaching benefits for articulation, speech, language, and auditory skills development (Darrow, 1985; Hummel, 1971; Solomon, 1980).

Records from schools around the country during the mid-to-late 1800s show that instruments such as pianos, organs, and drums were used by students who were deaf and hard of hearing (Darrow, 1985; Hummel, 1971; Sheldon, 1997; Solomon, 1980). Music instruction at the Illinois School for the Deaf in the late nineteenth century included teaching students to distinguish differences in duration, pitch, rhythm, and accent by touching pianos to experience vibrations and playing drums and other rhythm instruments (Sheldon, 1997). By the early 1900s, the Illinois School for the Deaf had formed its own band, which continued to teach rhythm and other music skills to its students. At this same time, similar bands existed at schools for the deaf in New York and Tennessee. The success of these bands and similar music groups composed of students who were deaf and hard of hearing demonstrated how these children could effectively accomplish musical tasks that were very similar to the accomplishments of their hearing peers; many who heard the bands perform praised them for their excellent musical quality despite the students not being able to hear what they were playing (Hummel, 1971; Sheldon, 1997).

Music programs have thrived in schools for the deaf and hard of hearing for nearly two hundred years. A plethora of historical data and empirical research exists to

support years of records stating the benefits of music education for children who are deaf and hard of hearing. These benefits include improvements in auditory, speech, and language skills as well as positive correlations to cognitive and social-emotional development (Anvari, Trainor, Woodside, & Levy, 2002; Atkins & Donovan, 1984; Bilhartz, Bruhn, & Olson, 2000; Birkenshaw, 1965; Chan, Ho, & Cheung, 1998; Cheek & Smith, 1999; Darrow, 1985; Darrow & Heller, 1985; Gilmore, 1966; Ho, Cheung, & Chan, 2003; Hummel, 1971; May, 1961; McDermott, 1971; Patel & Iversen, 2007; Sheldon, 1997; Walczyk, 1993; Wecker, 1939).

Cognitive Development

The relationship between musical training and ability and other areas of cognitive development and achievement has been studied extensively. Bilhartz et al. (2000) cite research that suggests a link between musical and spatial reasoning abilities. Studies show that musical activity, such as playing an instrument, requires the same neural firing patterns in the brain that are needed for the performance of other forms of spatial recognition (mentally sorting items according to size, shape, etc.) and spatial-temporal reasoning (transforming and combining images in ways that create a meaningful whole). Because both musical reasoning and spatial intelligence rely on similar patterns of brain development, the authors predicted that music exposure could be used to strengthen spatial reasoning, especially in young children whose brains were still maturing.

To test this hypothesis, the researchers in this study evaluated two groups of children. The experimental group of children participated in a 30-week music program that involved singing, dancing, and playing instruments, while the control group did not

participate in the music program. The Stanford-Binet Intelligence Scale was administered to both groups before and after the 30-week period. The researchers found that children who participated in the music program scored significantly higher on measurements of visual imagery, sequencing, and certain abstract reasoning strategies than children in the control group. These results support the theory that the portion of the brain active during musical performance is also active during these imagery, reasoning, and sequencing strategies, suggesting that an increase in musical activity may positively correlate with an increase in these cognitive abilities (Bilhartz et al., 2000).

Ho et al. (2003) also investigated the connection between musical performance and brain activity by researching the correlation between music training and verbal memory. The authors cited previous research showing that music training affected the development of individuals' brains in a specific pattern; individuals with music training tended to have enlarged left temporal lobes. This portion of the brain is also thought to mediate verbal memory.

To test the connection between music training and verbal memory, the researchers compared children who had music training through formal vocal or instrumental instruction to children at the same school who had no such music training. Both groups of children were given a test called the HKLLT-Form One, which measures verbal learning and memory ability by asking participants to recall as many words as possible from lists of words presented orally. Results showed that children with music training demonstrated better verbal memory according to this test than those without training. This suggests that music training during childhood may stimulate development of the area of the brain responsible for verbal memory and that the use of music training may positively

influence children's ability to retain verbal information (Chan et al., 1998; Ho et al., 2003).

In addition to cognitive abilities such as abstract reasoning and memory, music abilities have also shown a correlation with developmental areas such as speech and language processing, phonological and phonemic awareness, and early reading ability (Anvari et al., 2002; Patel and Iverson, 2007). Patel and Iverson (2007) cite research that suggests musical experience influences basic auditory sensory processing circuitry in the brain, which affects speech and language processing. Specifically, the authors studied the processing of pitch, which is a highly structured aspect of music as well as an important aspect of speech; recognizing and interpreting changes in pitch, or inflection, in speech can be crucial to understanding the meaning or intention of a spoken message. The authors suggest that because music and speech share common characteristics of fine distinctions in pitch, timbre (tone quality) and duration, music training may positively impact these areas of speech development (Patel and Iverson, 2007). Exposure and practice discriminating differences in pitch and tone in music may positively impact children's ability to understand speech and language by helping them become attuned to fine distinctions in the prosodic elements of spoken language that hold so much communicative meaning (Patel & Iverson, 2007; Thompson, Schellenberg, & Husain, 2004).

Musical ability can also be connected to phonemic and phonological awareness and early reading ability in young children. Anvari et al. (2002) discuss research which proposes that some auditory skills necessary for music perception, such as rhythmic, melodic, and harmonic discrimination, may also be used in the processing of language, in

the form of auditory analysis skills such as blending and segmenting sounds. The ability to discriminate pitch, which has been shown to be strengthened by musical activity, is significantly correlated with phonemic awareness, which in turn correlates with simple reading ability. Pitch perception skills as related to music, therefore, may reflect a child's ability to internalize important sound structures in his or her environment, i.e. sound structures that are associated with early reading activities.

In their study, Anvari et al. (2002) administered a battery of tests to a group of four and five year-old children to assess musical ability as related to pre-reading and reading skills. Phonemic awareness skills included rhyme generation, blending phonemes to make words, and identifying, segmenting, deleting, and recombining syllables and sounds in a word. The Wide Range Achievement Test-3 (WRAT-3) was administered to test letter identification and the ability to read words. Musical ability was evaluated by testing the children's ability to discriminate rhythms, melodies, and chords, as well as their ability to reproduce rhythms that were presented to them. Findings revealed that musical ability was correlated with phonemic awareness as well as reading ability.

The relationship between music perception and phonemic awareness in this study supports the idea that they share some of the same auditory mechanisms, such as segmenting speech and streams of tones into relevant units and recognizing compositions across variations in pitch, tempo, speaker or performer, and context. The association between musical skill and auditory processing may also influence reading performance; basic auditory skills that are used to perceive music, such as frequency resolution, temporal resolution, and temporal sequencing, have also been shown to distinguish good readers from poor readers (Anvari et al., 2002). This research supports the idea that

participation in music activities can positively impact children's cognitive development as well as their academic performance.

Although this research is focused on general populations of children, it can nevertheless be applied to the education of children who are deaf and hard of hearing; notwithstanding those who also have cognitive or developmental delays, children who are deaf and hard of hearing may exhibit the same connections between musical training and cognitive development and academic skills. In addition to music having a positive impact on the skills noted above, children who are deaf and hard of hearing may also benefit from musical activity in a number of other ways; involvement in music programs can also help improve these children's speech and language skills (Atkins & Donovan, 1984; Birkenshaw, 1965; Darrow, 1985; Gilmore, 1966; Hummel, 1971; McDermott, 1971; Walczyk, 1993; Wecker, 1939)

Speech and Language Skills

The benefits of music instruction for the development of speech and language skills of children who are deaf and hard of hearing have been documented for many years. Many music programs in schools have focused heavily on pitch discrimination; by learning to distinguish differences in musical tones, children can also practice varying the pitch or intonation of their own speaking voices. Learning to sing by matching the tones of their voices to other singers can lead children to use speech with more natural voice inflections (Atkins & Donovan, 1984; Birkenshaw, 1965; Darrow, 1985; Walczyk, 1993; Wecker, 1939). For example, playing musical notes while children speak can help them

practice raising their intonation when asking a question or to use descending intonation when making a statement (Birkenshaw, 1965).

The use of rhythm instruction aimed at helping children who are deaf and hard of hearing learn to discriminate and manipulate different rhythms provides these children with skills that can also be used for language and speech development (Birkenshaw, 1965; Darrow, 1985; Gilmore, 1966; McDermott, 1971). Children can learn to follow rhythms and create their own using activities such as clapping, tapping, dancing, or playing instruments. This can be translated to more natural speech and language; children will learn to speak with a more natural rhythm in connected speech, using appropriate suprasegmental aspects of speech such as stress and duration (Darrow, 1985; Gilmore, 1966). Practicing different musical rhythms can help transform a child's spoken language skills from unintelligible, forced, or monotone speech to naturally flowing, rhythmic speech that more closely approximates that of their hearing peers (McDermott, 1971).

In addition to improving the quality of children's speech, Gilmore (1966) notes that music can be used to help children who are deaf and hard of hearing improve their language by aiding the learning of new vocabulary. She explains that children can apply familiar rhythm patterns to the practice of pronouncing new words and phrases and that songs and poems can be used to practice and reinforce new vocabulary and concepts.

The Orff Method is a system of rhythm teaching that has been used by a number of deaf education programs to teach musical skills. This method emphasizes the rhythm of words rather than the time value of notes. The Orff Method, which Birkenshaw (1965) describes as a synthesis of music, movement, speech, and rhythm, stresses encouraging children's creativity and enjoyment of learning and creating their own rhythms. The

instruments used with this method include those designed to teach rhythm, such as drums and rhythm sticks, and those used to teach melodies, such as xylophones and glockenspiels. Through the use of instruments, rhythm activities, poems, and songs, the Orff Method can be very effective in developing natural language and promoting enjoyment of musical expression (Birkenshaw, 1965; Gilmore, 1966).

Auditory Skills

In addition to improving their speech and language skills, music instruction can also be used to develop the auditory skills of children who are deaf and hard of hearing. For children who are deaf and hard of hearing, listening is often a skill that does not come naturally; listening skills must be learned. Darrow (1985) notes that music offers a medium through which listening can be practiced. Children must be taught to become aware of sounds as a means of obtaining information from their environment. Musical stimuli often provide children who are deaf and hard of hearing with the motivation to attend to and interpret meaning from sounds. Traditional auditory training methods can become highly structured and repetitive, so music can provide an enjoyable alternative to more traditional methods while still allowing children to practice listening skills (Darrow, 1985).

Darrow (1985) describes how various musical instruments can be used to develop the auditory skill of timbre recognition (i.e. the ability to recognize different pitches). Attending to different tones played on instruments can positively impact children's ability to discriminate and gain meaning from different pitches in speech sounds.

Understanding speech also requires the ability to attend to one speaker, or figure,

while ignoring background noise in the environment, or ground. Attending to a single instrument as others play or recognizing the entrance and exit of specific instruments in a musical composition can aid in the development of this figure-ground discrimination (Darrow, 1985).

Another important auditory skill involves memory and sequencing. Darrow (1985) explains that the structure of language and the meanings we can perceive from that structure require us to retain acoustical information in our memories in the correct sequence over a period of time. Musical activities such as vocal or rhythm imitations, singing the words to simple songs, and recalling instruments heard in succession all help to develop sequential memory; these in turn can positively affect the ability of children who are deaf and hard of hearing to receive auditory information and process it in a way that is meaningful.

While the benefits of music instruction can be seen in areas specific to speech, language, and auditory skill development, the impact of involvement in a music program can also reach broader contexts such as emotional well-being and social skill development (Atkins & Donovan, 1984; Birkenshaw, 1965; Darrow, 1985; Hummel, 1971; May, 1961; McDermott, 1971; Walczyk, 1993).

Social Skills

The enjoyment and personal satisfaction derived from participation in music activities have been documented since the advent of music programs for individuals who are deaf and hard of hearing. In 1848, David Ely Bartlett heavily emphasized the pleasure that can be derived from music in his rationale for teaching music to the deaf and hard of

hearing; he described music as a means of intellectual gratification and cultivation (Darrow & Heller, 1985). In the years that followed, many others described the benefits of music in a similar manner. Atkins and Donovan (1984) cite an elementary school program in New York that emphasizes music participation for the sake of the children enjoying themselves and appreciating the music itself. Many programs like these stress teaching music understanding and appreciation as their primary goal as opposed to simply a subsidiary therapy (Atkins & Donovan, 1984; May, 1961). As Darrow (1985) explains, the musical capacities of children who are deaf and hard of hearing may be limited, but their enjoyment of musical activities need not be diminished as a result of their hearing levels.

Participation in music activities can provide children with an environment in which they feel comfortable and free to express themselves. Hummel (1971) states that music is particularly valuable in the realm of self-realization. Activities such as therapeutic movement, social dancing and singing, and playing musical instruments can all bring pleasure to children who are deaf and hard of hearing and help them develop self-confidence and self-assurance. McDermott (1971) supports this idea by arguing that participation in rhythm activities gives children a sense of control over their bodies. During music time, children are provided with an outlet for their physical energy as well as any tensions or frustrations that may result from their intensive school curriculum. Freedom to express themselves creatively and use their imaginations is encouraged through the use of music programs such as the Orff Method mentioned previously in this paper (Birkenshaw, 1965; McDermott, 1971).

Music programs can also impact the way children who are deaf and hard of hearing participate as members of a group. Music classes and group activities necessitate that children learn to get along, work together, and follow directions. Working toward a common goal, such as singing and acting out a song as a group, requires children to utilize appropriate social skills such as turn-taking, sharing, and respecting others; involvement in music provides a positive motivator for children to develop these skills. Children who participate in group music activities also develop a sense of responsibility in the sense that each child comes to realize his or her unique role in the group (Birkenshaw, 1965; McDermott, 1971). For example, a child may be motivated to be responsible for learning his part in an instrumental ensemble piece so as not to make the whole group sound bad.

Music programs also present children who are deaf and hard of hearing with a valuable opportunity to interact with their hearing peers. Walczyk (1993) believes that one of the goals of mainstreaming, or the immersion of a child who is deaf or hard of hearing into a regular education setting, is increased interaction between that child and his or her hearing peers. The objective of increased socialization can be accomplished through shared participation in a music program (Darrow, 1985; Walczyk, 1993). Inclusion in music activities alongside their hearing peers can help children who are deaf and hard of hearing better assimilate themselves into the regular education environment; sharing and enjoying common experiences in an environment that is less structured than a regular classroom allows children to express their personalities and form bonds with one another. Darrow (1985) notes that children who are deaf and hard of hearing can often be excluded from their hearing peers due to language or communication barriers. This

exclusion does not exist, however, in a music program in which all children can participate regardless of their level of hearing. By having all children sing, dance, and play instruments together, social barriers erode and the children can experience a genuine camaraderie through making music (Walczyk, 1993).

It is evident through historical records and empirical data that exposure to music programs can greatly impact the success of children who are deaf and hard of hearing in virtually all aspects of their lives. Speech, language, and auditory skills can benefit from music activities such as rhythmic and vocal training and instrumental instruction. Participation in group music instruction can teach children valuable social skills and strengthen their sense of themselves in relation to the world around them.

PURPOSE

Because approaches to music instruction for children who are deaf and hard of hearing are so varied, it was the goal of this study to obtain information about teaching methods, program objectives, and perceived outcomes among private oral schools that offer some form of music instruction. Through review of current literature regarding the connection between music and childhood development and analysis of data from surveys completed by instructors at private oral schools, a detailed representation of the various ways in which music is used and its perceived benefits to children who are deaf and hard of hearing was developed.

METHOD

Participants

Prospective participants for this study were selected based on their inclusion in a list of private Oral Deaf Education Schools in North America as found on the Oral Deaf Education website (www.oraldeafed.org). Surveys were sent to 43 private oral schools in the United States. These schools were selected based on the contact information they provided online. Schools from countries outside the United States were not selected for this study. It was not known whether the schools selected had music programs at the time of selection. A cover letter outlining the rationale and procedure of the study was included with the survey and addressed to the main contact of each school based on information supplied online. Addressees were instructed to direct the survey to the individual at their school most able to answer specific questions about their use of music. Participants who completed the survey included school directors, principals, teachers of the deaf, music teachers, and music therapists.

Materials

A survey was developed to gather information about music programs and the use of music instruction in private oral deaf schools. The survey included eight open-ended and eight closed-set response questions designed to elicit specific information about the types of music instruction offered, the people who provide instruction, methodologies and materials used, program objectives, and other school-related areas affected by music participation. Space on the survey was given for participants to provide comments, anecdotal information, and their own informal assessments of student performance as it

related to their music instruction. Refer to Appendix A for a copy of the survey distributed to the schools.

Procedure

An electronic version of the survey was sent to the selected oral deaf education schools via e-mail addresses supplied online. Participants were given the option of following a link to complete an online survey or completing the survey in Word document form which then could be faxed to a specified number. Participants were given approximately four weeks to complete the survey in this manner. After this initial four-week period, copies of the survey were mailed to schools on the list that had not yet completed the survey. These schools were asked to respond within two weeks to complete the survey. Twenty-seven surveys were completed and returned (63% return rate). Sixteen schools (37%) did not respond. Refer to Appendix B for a list of schools that responded to the survey.

RESULTS

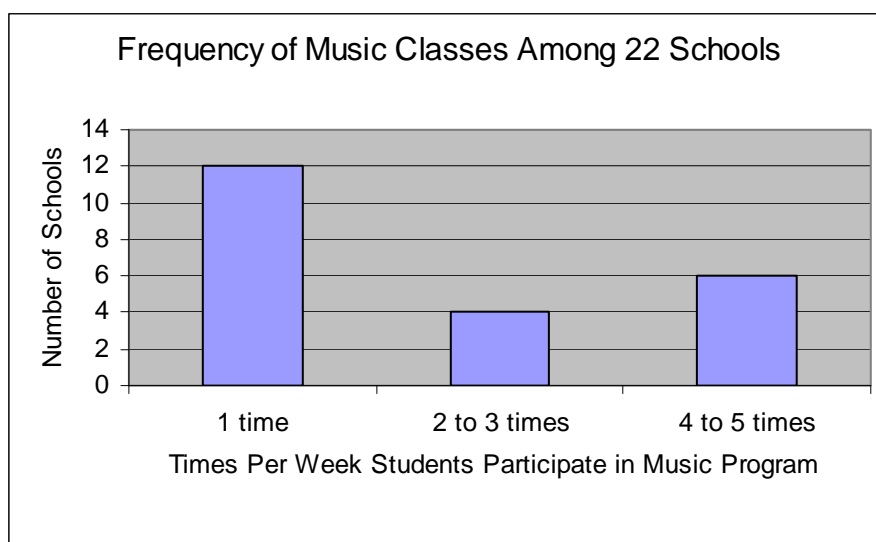
Twenty-two (81%) of the twenty-seven schools that responded to the survey indicated that they offered a music program at their school. Five schools (19%) stated that they did not offer a music program. However, two of these five schools did provide additional comments at the end of the survey explaining that while their schools did not have formal music programs, they did incorporate music more informally during daily school activities.

The number of students participating in music programs ranged from eleven children at one school to 100 children at another school. The students ranged in age from one year to twelve years old. Schools reported having music programs at their schools for at least one to two years and ranging to over fifty years.

Precise Data for Selected Survey Questions

How many times per week do the students participate in the music program?

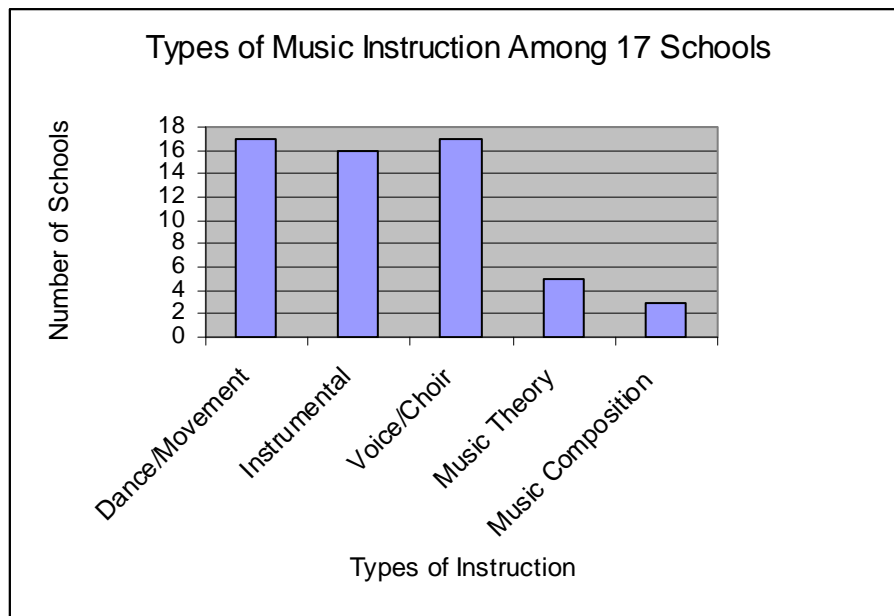
(22 responses out of 22 schools with music programs)



77% of respondents that offered music programs (17 out of 22 schools) reported that they felt the amount of time they spent on music at their school was adequate, while 23% (5 out of 22 schools) did not. Of these five schools, two respondents reported that they would prefer their students to receive music instruction at least two times per week.

What types of instruction are offered through your music program? (respondents asked to check all that apply)

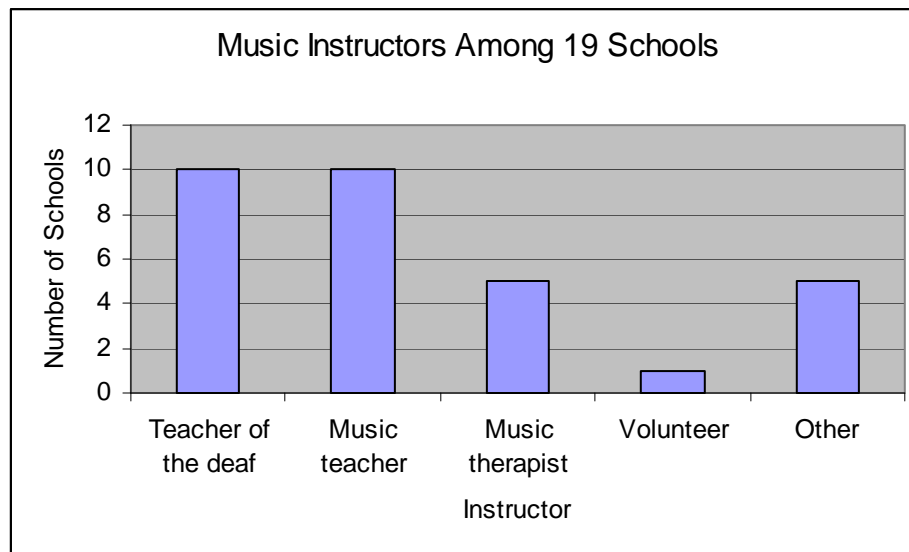
(17 responses out of 22 schools with music programs)



Respondents that offered instruction different than or not limited to these five choices included one school that described its program as “group and individual music therapy,” one school that taught music history, and one school that taught music appreciation.

Who provides instruction for your music program? (respondents asked to check all that apply)

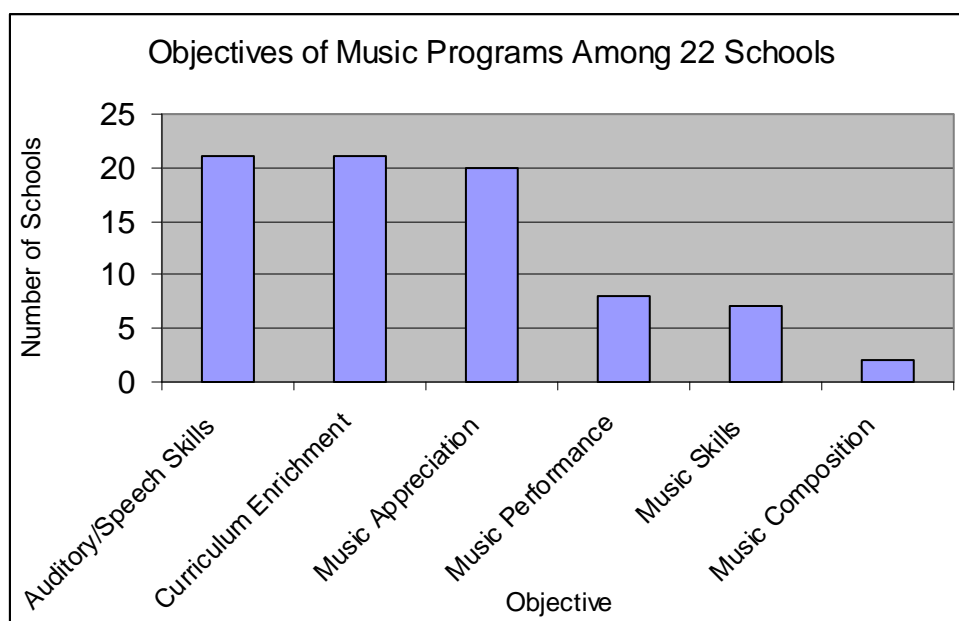
(19 responses out of 22 schools with music programs)



One school reported using a combination of a music therapist, teacher of the deaf, and community volunteers. Four schools used different professionals for music instruction; these included a regular education teacher (1 school), a teacher's aide who teaches all special programs such as gym, music, art, and library (1 school), and speech pathologists (2 schools).

What are the main objectives of your music program? (respondents asked to check all that apply)

(22 responses out of 22 schools with music programs)



Four schools reported objectives not included in these choices. These included more specific emotional and social skill-related areas such as building a sense of community and promoting self-confidence, self-esteem, self-expression, and self-exploration.

When asked to identify which of the objectives provided on the survey contributed the most to their overall schools' curricula, almost half of all respondents with music programs selected the objectives of auditory and speech skills and curriculum enrichment (language/vocabulary development, motor skills, and social-emotional skills).

This demonstrates a connection between schools' music program objectives and overall curricula.

Respondents reported using a variety of teaching materials and methodology to achieve the objectives of their music programs. The most common materials and methods involved using instruments and teaching students to sing songs. Schools reported using compact discs, keyboards, and percussion and string instruments as well as print models to teach music. Several schools also reported using specific published music curricula such as the "Music Together" Program. Most respondents felt that these teaching methods were very successful in achieving the objectives of their music programs. Using songs and music was reported to enrich the general curriculum by allowing for carry-over of thematic language and vocabulary, for example.

According to respondents, many changes were seen in the behavior and performance of students who participated in music programs. Every school reported noticing positive changes in students' social and emotional behavior, and the majority of schools reported observable changes in the area of speech and auditory skills. Many schools also reported changes in students' gross and/or fine motor skills as related to music participation, and almost half of the schools reported changes in students' academic achievement.

When asked to elaborate on the specific changes they had seen in their students' behavior and performance in school as related to music participation, many respondents noted positive changes in students' enjoyment of group activities as well as increased self-esteem and self-confidence. Other respondents offered anecdotal information regarding improvements they had seen in students' phonemic awareness and early

reading abilities as a result of music instruction. Respondents also shared that music participation positively impacted how students interacted with one another as well as with their hearing peers.

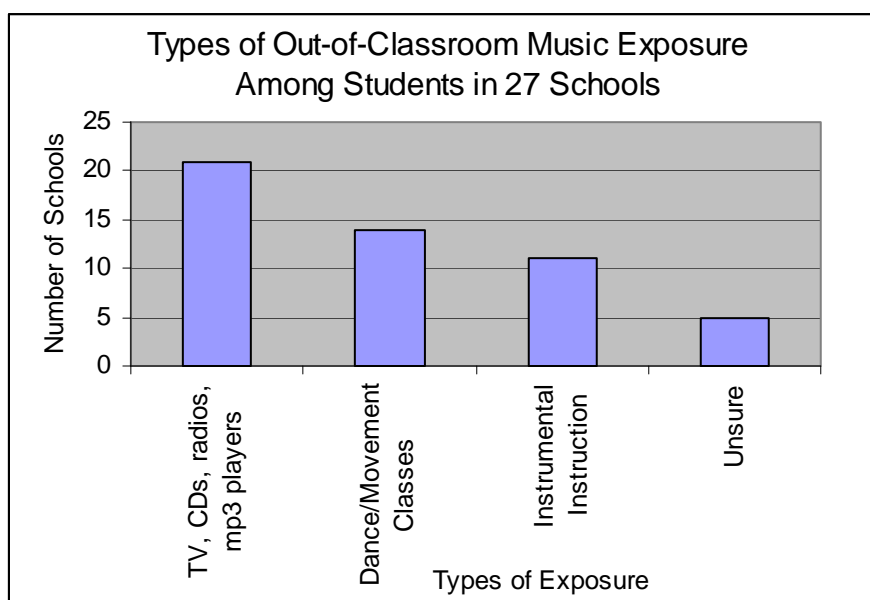
Based on your best judgment, please rate the students' enjoyment of your music program.

				4.71
1	2	3	4	5
enjoy very little/not at all				enjoy very much

Based on this Likert scale question, respondents rated their students' enjoyment of music programs at approximately 4.71, meaning that most respondents believed that their students enjoy music programs very much. When asked to describe what their students liked best about their music programs, many respondents felt that their students enjoyed singing and dancing. Respondents also indicated a perception that students enjoy playing instruments as well as the less-structured environment music class offers as a break from more structured classroom lessons. Respondents felt that their students enjoy the freedom and creativity music programs provide and that students like being able to use their imaginations and make their own decisions. Social aspects of music were also referenced; students are presumed to enjoy the non-judgmental atmosphere of their music programs as well as the sense of community that is fostered by gathering together to create music.

To the best of your knowledge, in what ways are your students exposed to music outside the school setting? (respondents asked to check all that apply)

(all 27 schools responding)



Two schools also specified other ways in which their students are exposed to music outside of school. One school reported student participation in group singing with a music therapist. Another school reported some students as having parents who are involved with music and play instruments at home.

At the end of the survey, respondents were given space to provide additional comments. Several schools used this opportunity to reiterate the importance of music within their schools' curricula. A selection of comments is cited below:

- “I believe strongly that music is a value in our school. It is critical to the children’s communication skills as well as development overall.”
- “We all have the ability to appreciate music. Sometimes we have to tap into different resources and music therapy is that catalyst for learning.”

DISCUSSION

The majority of schools that responded to this survey indicated that they offered some form of music instruction as part of their schools’ curricula. Of the five schools that reported not having a formal music program, two schools explained the ways they incorporated music during daily school activities. The descriptions these schools offered regarding the extent to which they used music in the classroom were similar to many other schools’ description of their music programs. This suggests that some schools may automatically include music in routine activities without distinguishing a formal music program.

The fact that several schools reported involvement by children as young as one year old supports the belief that music can benefit the development of children of all ages and can be successfully incorporated and modified to be age-appropriate for very young children up to older adolescents. The number of students participating in music programs also varied greatly due to enrollment numbers at each school. The majority of schools included their entire student population in music programs, which reinforces the idea that all children can benefit from music instruction.

Half of the respondents reported that their students participated in music programs once a week. It is interesting to note that nearly half of this group felt that once a week

was inadequate and would like to increase the amount of time per week spent on music. One respondent explained this sentiment by saying that one session a week did not provide enough time for all of the objectives of her music program, such as singing and playing instruments. Others justified the amount of time spent in the formal music program as being adequate by explaining that teachers often carried over many music concepts and activities into the classroom, providing the students with further exposure to the benefits of music.

All of the schools that responded to the question regarding types of instruction reported teaching singing as well as dance or movement. This leads one to conclude that the most common kinds of music activities children in oral schools participate in are those that involve listening, singing along, and dancing to music. Sixteen out of the 17 schools offered some kind of exposure to musical instruments, ranging from experimenting with percussion instruments with younger age groups to teaching older children how to play orchestral instruments in ensembles.

Half of the schools with music programs reported that teachers of the deaf provided music instruction. It is not known whether this number reflects teachers who use music in the classroom, teachers who teach music during a specific time of the day separate from other subjects, or both. This number is significant because it demonstrates how teachers of the deaf can be responsible not just for teaching core subjects but for incorporating creative means to complement more traditional subjects.

The large percentage of schools that use music teachers reiterates how important it is for music teachers to be aware of the special needs of children who are hard and hearing. Some schools have music teachers on staff, while others use music teachers who

travel from school to school. The fact that several schools reported using professionals ranging from speech pathologists to teachers' aides suggests that there is no single professional who is most qualified to teach music; programs can be extremely successful so long as they are led by professionals who are dedicated and understanding of the unique learning needs of children who are deaf and hard of hearing.

The fact that the majority of schools use their music programs to help the development of their students' speech, language, and auditory skills is not surprising given that the primary goal of oral schools is to teach children who are deaf and hard of hearing to listen and talk. It is interesting to note that several schools highlighted music skills, performance, and composition as main objectives of their programs. This reinforces the belief that children who are deaf and hard of hearing can still learn to create and enjoy music despite their various hearing levels.

According to many schools, the objectives of auditory and speech skills, as well as language and vocabulary, motor skills, and social and emotional health translated from music time to the general school curriculum. The skills cultivated through music activities are closely connected to all areas of a child's education. It is imperative that teachers of the deaf recognize that the auditory skills a child develops by listening to and participating in songs, for example, can positively impact their ability to listen and gain meaning from sounds in the classroom.

While four schools used specific published music programs, the majority of schools reported using a wide variety of materials for teaching music. Teaching methods varied from simply singing and dancing along to songs on a compact disc to learning to play a variety of musical instruments. This demonstrates that the incorporation of music

into school curricula does not have to be complicated or expensive; there are opportunities to expose children to music provided that teachers are creative with the resources they have.

When asked about the changes seen in students who participated in music programs, every single respondent reported observing positive changes in their students' social and emotional behavior. Several schools expanded on this by describing their students as being more confident and enjoying themselves more in school as a result of participation in music activities. This reinforces the long-standing view that inclusion in music activities can help children learn to express themselves creatively and explore their sense of self as related to the world around them. Particularly for children who are deaf and hard of hearing, music provides the opportunity to participate freely and imaginatively without being judged on things like speech and language abilities. Many schools also noticed that their students showed academic improvement as well as improvements in their speech and auditory skills. While no causal relation can be established, it is very possible that music may positively influence these other areas of achievement.

The wide range of explanations concerning aspects of student behavior impacted by participation in a music program demonstrates how far-reaching the benefits of music can be. Respondents described positive changes in students' willingness to contribute to group activities as well as increases in their self-esteem. Improved speech skills, the increased use of new vocabulary and language, and improved early literacy skills were also noted. Using music as a means of sharing common experiences and thus building relationships with their hearing peers was also observed among children who are deaf and

hard of hearing who participated in one school's music program (the school that reported this observation has students with normal hearing in addition to students who are deaf and hard of hearing). This reinforces the sense of community-building that music can cultivate; children who are deaf and hard of hearing may feel isolated from their hearing peers, and music offers them an opportunity to interact in an enjoyable environment.

All of the schools reported that their students seemed to thoroughly enjoy participating in music programs. Students enjoyed learning songs, dances, and how to play instruments, but it is important to note that several schools focused on the less structured aspects of music programs that the students enjoyed. What many students seemed to like best about music time was the opportunity to use their imaginations and make their own choices. The curricula at many private oral schools can be very intensive because children who are deaf and hard of hearing often need to make up academic or linguistic deficits in relation to their hearing peers. Music programs provide these children with time at school when their performance may not be so critically evaluated; they can have fun in a less structured environment while still learning important school skills. It is important for teachers of the deaf to remember that their students need time like this during the day to relax and enjoy themselves.

Not only is music an important part of school experiences for children who are deaf and hard of hearing, but it also plays a large role in their lives outside of school. The majority of respondents who took this survey said that their students experienced music at home through the television, radio, compact discs, and other types of personal media players. Music can play a pivotal role in the formation of a child's social and cultural identity; as children grow up, they use music as a means to connect themselves to other

individuals who share the same preferences and values. This occurs among children who are deaf and hard of hearing as well; especially with ever-improving assistive technologies such as digital hearing aids and cochlear implants, these children can often experience music at the same level of their hearing peers.

It is the responsibility of schools to provide children who are deaf and hard of hearing with opportunities to explore and develop tastes for music, and schools must also stress the importance of connecting music activities at school with opportunities for exposure at home. Several schools reported that some of their students played instruments at home or had parents who were involved with music. This home-school connection can have a huge impact on the success of children who are deaf and hard of hearing who participate in music programs.

CONCLUSIONS

Participation in music activities can greatly impact the lives of children who are deaf and hard of hearing. Empirical research shows that music exposure and training can positively affect areas of cognitive development such as abstract reasoning, spatial skills, and memory. Children who are deaf and hard of hearing can benefit from music programs that help develop these skills just as much as normal hearing children can.

Anecdotal information provided by respondents to the survey supports research that shows a connection between music participation and language skills. Not only can music positively influence early reading ability by allowing children an opportunity to practice phonemic awareness skills, but music participation can also help improve language and vocabulary skills. This is especially important for children who are deaf and

hard of hearing; because these children can often have more difficulty acquiring and mastering language concepts and vocabulary, frequent exposure to thematic language and vocabulary through music can benefit them greatly. Many oral schools recognize this connection and use music participation as a means to make concepts more meaningful for their students.

Not only can music play a role in cognitive and language development, but it can also help develop speech and auditory skills which are crucial for children who are deaf and hard of hearing. Learning to sing and play rhythms and melodies on instruments can help children who are deaf and hard of hearing discriminate differences in these musical elements that can then be translated to elements of speech. Music participation helps children develop appropriate variations in pitch, duration, stress, and intonation, which helps make their speech sound more fluent and natural. Using music as a means to develop auditory skills is also beneficial for children who are deaf and hard of hearing; music programs provide a less structured and more creative environment for children to practice auditory discrimination skills using a variety of vocal and instrumental activities. The improvement of speech and auditory skills through music can then benefit students' performance in more traditional academic activities.

In addition to impacting areas of development that can be measured quantitatively, such as reading, language, speech, and auditory skills, music can also affect children who are deaf and hard of hearing in ways that are not as easy to measure objectively. The majority of schools that completed the survey cited social and emotional growth as one of the most common benefits of their music programs. This is extremely significant because it corroborates what educators have been stating for decades, that

participation in music activities can positively impact children's feelings about themselves and their roles in various communities. Music participation can help build students' self-esteem and self-confidence by letting them express themselves creatively and imaginatively in less structured and nonjudgmental environments.

Music programs also allow children who are deaf and hard of hearing to develop a sense of community. Group participation in music activities helps students learn responsibility and practice appropriate interactions with other children; students learn that their actions can affect the success of the group. Through music, students can experience the joy of being part of a group working toward a common goal. Music participation can also help children develop confidence in themselves and their abilities, which can be translated into having more confidence in other areas both in and out of school.

The social skills that children who are deaf and hard of hearing develop through music participation can benefit them greatly while they are students in private oral schools. But perhaps more significant is the impact that this skill development can have once students leave these schools and enter mainstream educational settings. Several survey respondents observed that shared musical experiences helped children who are deaf and hard of hearing interact more positively with their hearing peers. Music activities allow children of all developmental and hearing levels to bond over shared experiences; children can learn from a very early age to see past their differences and unite themselves by enjoying the same things. Group participation in music activities in the mainstream setting can help children who are deaf and hard of hearing feel more like a part of the community.

Although social skill development was one of the most common benefits of music programs cited by survey respondents, there is little empirical research to support anecdotal accounts. Further exploration of the connection between music participation and social skill development would be beneficial. A more complete understanding of how music influences social skills would help schools tailor their music programs to address this important area of childhood development.

Because music participation has been positively linked both empirically and anecdotally to so many different areas of childhood development, one can naturally argue that music instruction should be utilized as much as possible within schools for children who are deaf and hard of hearing. Any school, despite its size, funding, or staff, can use music to support its curriculum. Many survey respondents reported that although they may not have a formal music program in place, they still find ways to use music in classroom lessons and activities. Creative teachers can incorporate music into their daily routines without having to use expensive materials or complicated curricula; this may include anything from singing songs during greeting, transition, and departure times to learning to play the instruments of a country the class is learning about. Teachers and school staff can also learn how to adapt their approaches to music instruction based on the developmental needs and ages of their students. Children in a toddler or preschool class might learn basic nursery rhymes and finger-play songs, while older children could learn how to play instruments and read musical notation.

Because music can be so seamlessly incorporated into daily activities, it is not necessary that it be taught strictly by professionals with music backgrounds. While many private oral schools do employ music teachers or music therapists, the majority of schools

reported that teachers of the deaf were responsible for some elements of music instruction. A teacher of the deaf can be fully capable of providing music instruction as long as he or she understands how to use music appropriately to achieve school goals such as language or speech development. The teacher must also understand how music can impact children's cognitive, social, and emotional development.

An ideal music program within a private oral school for children who are deaf and hard of hearing would appropriately address all of the developmental areas discussed in this study. School staff knowledgeable about the relationship between music and childhood development would provide a nurturing, nonjudgmental environment where children could use their creativity and imaginations to explore music through a variety of materials and activities. A combination of vocal, instrumental, and movement instruction would expose children to concepts of music such as rhythm and melody; these concepts could be transferred to academic instruction and thematic activities to make school experiences more meaningful and memorable.

An ideal music program would also address the relationship between music and social skill development and use music participation as an opportunity to expose children to things like personal responsibility and community involvement. Teachers should also stress the importance of expanding music participation and appreciation beyond the school and into the children's home life. Parents should be educated about the positive role music can play in their children's lives; schools could provide families with activities and strategies to incorporate music into their daily lives.

It is evident that music participation can have a positive influence on children who are deaf and hard of hearing. Not only can it affect cognitive development, academic

achievement, and speech and language skills, but music can also impact social skills by allowing children to develop self-esteem and self-confidence as well as a sense of themselves as members of a community. Music can provide children who are deaf and hard of hearing the opportunity to connect to their peers as well as their greater community and lead richer, more fulfilling lives. By understanding how to use music to meet their students' diverse needs, oral schools can increase the likelihood that these children who are deaf and hard of hearing will be successful in all areas of life.

APPENDIX A

To Whom It May Concern:

Hello, my name is Julie Fix and I am a graduate student completing my Master's Degree in Deaf Education at Washington University in St. Louis. For my independent study project, I am researching music programs at oral schools for children who are deaf and hard of hearing.

Research has shown that the incorporation of music into school programs for children who are deaf and hard of hearing can have a positive impact on their educational success. Not only can music exposure and instruction improve their speech and language skills, but music can also positively influence children's social and emotional development. In order to best understand and meet the needs of my students academically and socially, I want to learn about how children in oral schools around the country are exposed to music in the school setting. I hope to apply my findings to the enrichment of my future teaching career as well as my future students' education. These findings will also be presented to students and faculty at the Washington University Program in Audiology and Communication Sciences research colloquium in May 2008.

I would greatly appreciate your input on this subject. Please direct the enclosed questionnaire to the person at your school most able to answer specific questions about how music is used to enrich your school's curriculum. Your participation is completely voluntary, and the results of the questionnaire will be seen only by myself and my faculty advisor, Michelle Grempe. Please return the questionnaire in the enclosed self-addressed stamped envelope no later than March 10, 2008. You may also fax your response to (314) 977-0023 attn: Michelle Grempe.

If you have any questions, please contact me:
314-374-0074
fixj@msnotes.wustl.edu

Thank you for your participation!

Sincerely,
Julie Fix

School Name: _____

Contact Name and Title: _____

Phone Number and Email Address (optional): _____

Please answer the following questions to the best of your knowledge.

1. Does your school offer a music program? _____ yes _____ no
 - a. If yes, how many students participate and what are their ages? _____
 - b. If no, please skip to question 14.

2. How long has your school had a music program? _____

3. How many times per week do the students participate in the music program? _____
 - a. In your opinion, is this an adequate amount of time? _____ yes _____ no
 - b. If no, please explain why not. _____

4. What types of instruction are offered through your music program? (check all that apply)

_____ instrumental _____ voice/choir _____ dance/movement

_____ music theory _____ composition _____ other (_____)

5. Who provides instruction for your music program?

_____ music teacher _____ music therapist _____ teacher of the deaf

_____ volunteer _____ other (_____)

6. What are the main objectives of your music program? (check all that apply)

_____ music appreciation _____ music performance

_____ music skills (notation, etc.) _____ music composition

_____ auditory/speech skills

_____ curriculum enrichment (language, vocabulary, etc.)

_____ other (_____)

7. Of these objectives, which do you feel contributes the most to your school's overall curriculum? Please explain.

8. Describe the teaching materials and methodology used to achieve the objectives of your music program.

9. Of these materials and methodology, which seem to be the most useful in achieving your program's objectives, and why?

10. Indicate areas where you have seen changes in your students since the start of their participation in your music program. (check all that apply)

☐ academic ☐ social/emotional ☐ speech/auditory skills
☐ gross/fine motor skills ☐ other (_____)

11. Please elaborate on specific aspects of student behavior that you feel have been influenced by participation in your music program.

12. Based on your best judgment, please rate the students' enjoyment of your music program.

1	2	3	4	5
enjoy very little/ not at all		indifferent		enjoy very much

13. Please discuss what your students seem to like best about your music program.

14. To the best of your knowledge, in what ways are your students exposed to music outside the school setting? (check all that apply)

☐ TV, radio, CDs, mp3 players ☐ instrumental instruction at home
☐ dance/movement classes ☐ not sure ☐ other (_____)

**Please include additional comments on the back of this page.
Thank you for your participation!**

APPENDIX B

School

Archbishop Ryan School for Deaf and Hard of Hearing Children
 Atlanta Speech School
 Buffalo Hearing and Speech Center
 CASTLE
 CCHAT Sacramento
 Central Institute for the Deaf
 Child's Voice
 Clarke School East
 Clarke School for the Deaf
 Clarke Pennsylvania Auditory Oral Center
 DePaul School for Hearing and Speech
 hear ME! now
 Jean Weingarten Peninsula Oral School for the Deaf
 John Tracy Clinic
 Listen and Talk
 Magnolia Speech School
 The Melinda Webb School at the Center for Hearing and Speech
 Memphis Oral School for the Deaf
 The Moog Center for Deaf Education
 Northern Voices
 Ohio Valley Voices
 Omaha Hearing School for Children
 St. Joseph Institute for the Deaf
 St. Joseph Institute for the Deaf – Carle
 St. Joseph Institute – Indianapolis
 Summit Speech School
 Sunshine Cottage for Deaf Children

Location

Norwood, PA
 Atlanta, GA
 Buffalo, NY
 Chapel Hill/Durham, NC
 Sacramento, CA
 St. Louis, MO
 Chicago, IL
 Canton, MA
 Northampton, MA
 Philadelphia, PA
 Pittsburgh, PA
 New Gloucester, ME
 Redwood City, CA
 Los Angeles, CA
 Seattle, WA
 Jackson, MS
 Houston, TX
 Memphis, TN
 St. Louis, MO
 Roseville, MN
 Cincinnati, OH
 Omaha, NE
 Chesterfield, MO
 Urbana, IL
 Indianapolis, IN
 New Providence, NJ
 San Antonio, TX

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